

<u>INST</u>	HIT / MISS	<u>DATA</u>
18∽LDR[Rm]	HIT	DATA[Rm]
MOV	N/A	
CMP	N/A	
:	:	:
:	:	:
20∽LDR[Rm]	MISS	— Tvariable
MOV	N/A	— DELAY
CMP	N/A	DATA[Rm]
:	:	:
:	:	:
22~ LDR[R1]	MISS	<del></del>
24~ LDR[R2]	MISS	<del></del>
MOV	N/A	MISSED DATA
CMP	N/A	28 \( DATA[R2] \) RETURNED
ADD	N/A	26 ∽DATA[R1] ∫ OUT OF OTDER

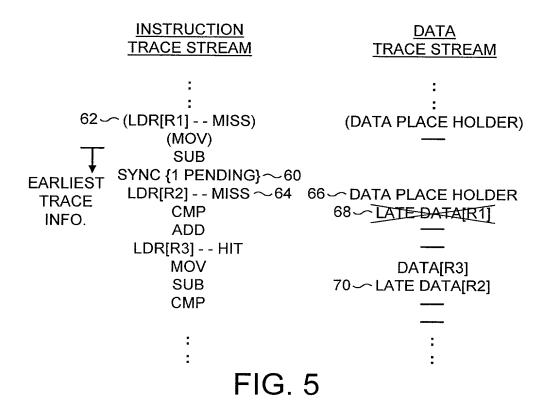
FIG. 2

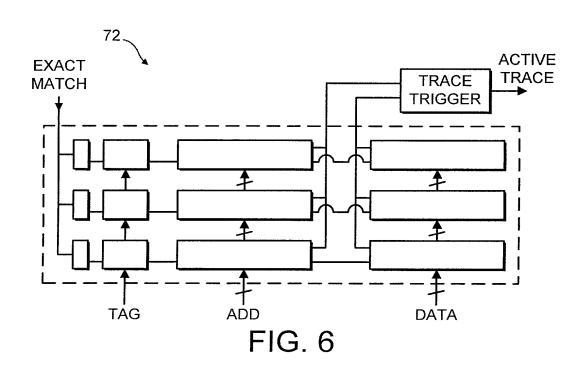
## DATA INSTRUCTION TRACE STREAM TRACE STREAM 32 ~ DATA PLACE HOLDER TAG 1 30 - LDR[R1] - - MISS MOV **CMP** 36 ∽ DATA[R2] 34 ← LDR[R2] - - HIT 40 ~ DATA PLACE HOLDER TAG 2 38 → LDR[R3] - - MISS ADD 42 LATE DATA TAG 2[R3] MOV 44 LATE DATA TAG 1[R1] **SUB** : FIG. 3

```
DATA
     INSTRUCTION
                                     TRACE STREAM
    TRACE STREAM
                        48 - DATA PLACE HOLDER 0 PENDING
46 ∽ LDR[R1] - - MISS
         CMP
         ADD
                                        DATA[R2]
     LDR[R2] - - HIT
                        52 - DATA PLACE HOLDER 1 PENDING
50 ∽ LDR[R3] - - MISS
                                 54 

LATE DATA[R1]
         SUB
         MOV
                        58 ~ DATA PLACE HOLDER 1 PENDING
36 - LDR[R4] - - MISS
                                     LATE DATA[R3]
         CMP
                                      LATE DATA[R4]
         MOV
           :
```

FIG. 4





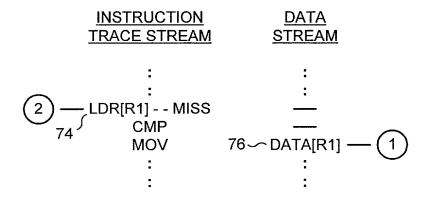


FIG. 7

EXACT MATCH	ADD MATCH	DATA MATCH	TRACE ACTIVATION POINT
<b>✓</b>	✓	✓	1
✓	✓	×	NONE
×	✓	✓	2
×	✓	×	2

FIG. 8

